

CLAIM AMENDMENTS

Please amend the claims as follows:

1. (Amended) An adaptive multifilar antenna comprising:

~~n a plurality of spaced filaments, where n is an integer greater than 1;~~

at least ~~one filament group having a predetermined plurality of a portion of~~
the filaments being coupled together in a fixed phase relationship to form a group of
filaments;

a weighting circuit operable to apply variable phase adjustments to signals
passed to and/or from the ~~n~~-filaments, said weighting circuit being operable to apply a
common variable phase adjustment to signals passed to and/or from the filaments of the
group and/or filament group;

detecting means operable to detect at least one electrical property of the
adaptive multifilar antenna with respect to at least one of the frequency, ~~polarisation~~
polarization and/or direction of propagation of a signal to be received or transmitted by
the adaptive multifilar antenna and/or impedance matching of the antenna; and

control means, responsive to the detecting means, operable to control the
operation of the weighting circuit to adjust ~~the~~ properties of the multifilar antenna to suit
better a current signal to be received or transmitted.

2. (Amended) ~~An~~ The antenna according to claim 1, wherein the weighting
circuit is operable to apply gain adjustments to signals passed to and/or from the filaments
and to apply the same gain adjustment to signals passed to and/or from the filaments of

the group.

3. (Amended) ~~An~~The antenna according to claim ~~1~~24, wherein the control means is operable to control the operation of the matching circuit to adjust the properties of the adaptive multifilar antenna to suit better a current signal to be received or transmitted.

4. (Amended) ~~An~~The antenna according to claim 1, including switch means associated with ~~a plurality of~~ the filaments for selectively altering the electrical length and/or interconnections of the filaments, ~~and~~ the signal connections to/from the filaments being at a first end of each filament; and

the switch means being operable to selectively interconnect pairs of filaments, a second end of those filaments being remote from the first end.

5. (Amended) ~~An~~The antenna according to claim 1, including switchable filaments having switch means for selectively altering the electrical length and/or interconnections of the switchable filaments and

each of the switchable filaments including at least a first filament section and a second filament section; and

the switch means being operable to selectively connect or isolate the first and second filament sections of each switchable filament so as to vary the electrical length of that filament.

6. (Amended) ~~An~~ The antenna according to claim ~~1~~24, in which:

the detecting means is operable to detect a signal to noise ratio of a received signal; and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal to noise ratio of the received signal.

7. (Amended) ~~An~~ The antenna according to claim ~~1~~24, in which:

the detecting means is operable to detect a signal to (noise plus interference) ratio of a received signal; and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal to (noise plus interference) ratio of the received signal.

8. (Amended) ~~An~~ The antenna according to claim ~~1~~24, in which:

the detecting means is operable to detect a signal level of a received signal;
and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal level of the received signal.

9. (Amended) ~~An~~ The antenna according to claim ~~1~~24, in which:

the detecting means is operable to detect a VSWR for a transmitted signal;
and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the VSWR for transmission of that signal.

10. (Amended) ~~An~~The antenna according to claim 1, in which the detecting means comprises:

analogue to digital conversion means for converting respective signals received by the filaments ~~and/or filament group~~ into corresponding digital representations;

-a memory for storing the digital representations;

means for combining the digital representations using respective phase relationships and gains; and

means for detecting properties of the antenna by analysis of the combined digital representations.

11. (Amended) ~~An~~The antenna according to claim 1, in which the detecting means comprises:

means for combining respective signals received by the filaments ~~and/or filament group using respective phase relationships~~;

analogue to digital conversion means for converting the combined signals into a corresponding digital representation;

a memory for storing the digital representation; and

means for detecting properties of the antenna by analysis of the combined

digital representations.

12. (Amended) ~~The An~~ antenna according to claim 11, wherein the combining means is operable to combine the respective signals ~~using~~ having respective gain weighting.

13. (Amended) ~~An~~ The antenna according to claim 1, in which the detecting means operates at least during reception of a reference signal burst by the antenna.

14. (Amended) ~~An~~ The antenna according to claim 1, in which ~~n is~~ there is an even integer number of said filaments.

15. (Amended) ~~An~~ The antenna according to claim 1, in which ~~n~~ there are is equal to 4 or 6 said filaments.

16. (Amended) ~~An~~ The antenna according to claim 1, wherein ~~n is~~ there are 4 said filaments and including two filament groups each of two diametrically opposed filaments, the filaments in each respective group being coupled together with a relative phase weighting of substantially 180°.

17. (Amended) ~~An~~ The antenna according to claim 1 wherein the filaments in the ~~or each filament group~~ of filaments have a diversity correlation of 0.7 or better.

18. (Amended) ~~The~~ An-antenna according to claim 1, in which the filaments are helically shaped.

19. (Amended) ~~An~~ The antenna according to claim 1, in which the filaments are at least partially intertwined.

20. (Amended) ~~An~~ The antenna according to claim 1, having a volute of generally elliptical or rectangular axial cross-section.

21. (Amended) ~~An~~ The antenna according to claim 1, wherein the weighting circuit operates at baseband.

22. (Amended) ~~An~~ The antenna according to claim 1, wherein the weighting circuit operates at RF.

23. (Amended) ~~An~~ The antenna according to claim 20, wherein the respective outputs of the weighting circuit are combined prior to frequency downconversion.

24. (Amended) ~~An~~ The antenna according to claim 1, including a matching circuit for matching the characteristic impedance of the antenna to that of a transmitting and/or receiving apparatus.

25. (Cancelled)